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I CLAIM:

1. A flush valve comprising a body defining a pressure chamber and having an inlet and an outlet, a main seat assembly between said inlet and outlet, a piston movable within the body, a refill orifice in the piston providing fluid communication between the inlet and the pressure chamber, pressure in the pressure chamber maintaining the piston closed upon the main seat assembly, a relief valve carried by the piston for venting the pressure chamber, a fluid-driven actuator attached to the body for selectably opening the relief valve, a hydraulic bypass in the body providing fluid communication between the inlet and the fluid-driven actuator, said main seat assembly having a plurality of fluid passages providing fluid communication from the inlet to the hydraulic bypass to provide fluid to the fluid-driven actuator.

2. The flush valve of claim 1 wherein the fluid passages include a plurality of uniformly arranged grooves on the outer periphery of the main seat assembly.

3. The flush valve of claim 1 wherein the main seat assembly further comprises a main seat filter and a sealing surface on an upper surface of the main seat filter, the sealing surface being in contact with the piston when the flush valve is in a closed position.

4. The flush valve of claim 3 wherein the sealing surface comprises an arcuate crown.

5. The flush valve of claim 4 wherein the sealing surface further comprises a flat base.

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6. The flush valve of claim 3 wherein the main seat filter comprises an annular ring, the ring including a sill having a first axial wall and a rib having a second axial wall, the first and second walls and the ring defining a channel, with at least a portion of the sealing surface being disposed in the channel.

7. The flush valve of claim 6 wherein the sealing surface comprises a flat base disposed within the channel such that radial expansion of the base is limited by said first and second axial walls.

8. The flush valve of claim 7 wherein the sealing surface further comprises an arcuate crown that extends at least partially above the annular ring of the main seat filter.

9. The flush valve of claim 8 wherein the arcuate crown is located radially inwardly of the outer periphery of the flat base.

10. The flush valve of claim 3 wherein the sealing surface further comprises at least one lockout lug positioned to prevent seating of a piston having a radial surface of incorrect diameter.

11. The flush valve of claim 3 wherein the sealing surface comprises an extension positioned to at least partially cover said hydraulic bypass, thereby requiring water flowing to the bypass to be filtered by the fluid passages.

12. The flush valve of claim 3 wherein the sealing surface is integrally molded on the main seat filter.

13. The flush valve of claim 3 wherein the fluid passages include a plurality of uniformly arranged grooves on the outer periphery of the main seat filter and the grooves are in substantially the same plane as the sealing surface whereby when the piston moves away from the main seat assembly water from the valve inlet will wash the grooves to remove any debris therein.

14. The flush valve of claim 1 wherein the main seat assembly carries a static seal at a lower peripheral portion thereof in contact with the flush valve body, the static seal being downstream of the hydraulic bypass.

15. The flush valve of claim 1 wherein the body includes an inwardly-directed shoulder, the main seat assembly being supported on the shoulder, the main seat assembly including a plurality of peripherally disposed, downwardly-extending pads which are engageable with the shoulder.

16. The flush valve of claim 6 wherein the pads define a flow passageway about the periphery of the main seat assembly for fluidly connecting the hydraulic bypass and the fluid passages.

17. A flush valve comprising a body defining a pressure chamber and having an inlet and

an outlet, a main seat assembly between said inlet and outlet, a piston movable within the body, a refill orifice in the piston providing fluid communication between the inlet and the pressure chamber, pressure in the pressure chamber maintaining the piston closed upon the main seat assembly, a relief valve carried by the piston for venting the pressure chamber, an actuator attached to the body for selectably opening the relief valve, the main seat assembly further comprising a main seat filter and a sealing surface on an upper surface of the main seat filter, the sealing surface being in contact with the piston when the flush valve is in a closed position and the sealing surface including an arcuate crown.

18. The flush valve of claim 17 wherein the sealing surface further comprises a flat base.

19. The flush valve of claim 18 wherein the main seat filter comprises an annular ring, the ring including a sill having a first axial wall and a rib having a second axial wall, the first and second walls and the ring defining a channel, with at least a portion of the sealing surface being disposed in the channel.

20. The flush valve of claim 19 wherein the flat base is disposed within the channel such that radial expansion of the base is limited by said first and second axial walls.

21. The flush valve of claim 20 wherein the arcuate crown extends at least partially above the annular ring of the main seat filter.

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22. The flush valve of claim 18 wherein the arcuate crown is located radially inwardly of the outer periphery of the flat base.

23. The flush valve of claim 17 wherein the sealing surface further comprises at least one lockout lug positioned to prevent seating of a piston having a radial surface of incorrect diameter.

24. The flush valve of claim 17 wherein the sealing surface is integrally molded on the main seat filter.

25. The flush valve of claim 17 wherein the body includes an inwardly-directed shoulder, the main seat assembly being supported on the shoulder, the main seat assembly including a plurality of peripherally disposed, downwardly-extending pads which are engageable with the shoulder.

26. A flush valve comprising a body defining a pressure chamber, the body having an inlet, an outlet and a shoulder therebetween, the shoulder defining an internal sealing wall, a main seat assembly disposed between said inlet and outlet and having a static seal engageable with said internal sealing wall, a piston movable within the body, a refill orifice in the piston providing fluid communication between the inlet and the pressure chamber, pressure in the pressure chamber maintaining the piston closed upon the main seat assembly, a relief valve carried by the piston for venting the pressure chamber, a fluid-driven actuator attached to the

body for selectably opening the relief valve, a hydraulic bypass in the body providing fluid communication between the inlet and the fluid-driven actuator, said main seat assembly having at least one fluid passage providing fluid communication from the inlet to the hydraulic bypass to provide fluid to the fluid-driven actuator, the hydraulic bypass being located so as to be spaced from the internal sealing wall of the shoulder.

27. The flush valve of claim 26 wherein the fluid passage includes a plurality of uniformly arranged grooves on the outer periphery of the main seat assembly.

28. The flush valve of claim 26 wherein the hydraulic bypass is cast into the body.

29. The flush valve of claim 26 wherein the internal sealing wall is located radially inwardly of the hydraulic bypass.

30. The flush valve of claim 27 wherein the main seat assembly further comprises a main seat filter and a sealing surface on an upper surface of the main seat filter, the sealing surface being in contact with the piston when the flush valve is in a closed position.

31. The flush valve of claim 30 wherein the sealing surface comprises an arcuate crown.

32. The flush valve of claim 31 wherein the sealing surface further comprises a flat base.

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33. The flush valve of claim 30 wherein the main seat filter comprises an annular ring, the ring including a sill having a first axial wall and a rib having a second axial wall, the first and second walls and the ring defining a channel, with at least a portion of the sealing surface being disposed in the channel.

34. The flush valve of claim 33 wherein the sealing surface comprises a flat base disposed within the channel such that radial expansion of the base is limited by said first and second axial walls.

35. The flush valve of claim 34 wherein the sealing surface further comprises an arcuate crown that extends at least partially above the annular ring of the main seat filter.

36. The flush valve of claim 35 wherein the arcuate crown is located radially inwardly of the outer periphery of the flat base.

37. The flush valve of claim 30 wherein the sealing surface further comprises at least one lockout lug positioned to prevent seating of a piston having a radial surface of incorrect diameter.

38. The flush valve of claim 30 wherein the sealing surface comprises an extension positioned to at least partially cover said hydraulic bypass, thereby requiring water flowing to the bypass to be filtered by the fluid passages.

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39. The flush valve of claim 30 wherein the sealing surface is integrally molded on the main seat filter.

40. The flush valve of claim 30 wherein the grooves are in substantially the same plane as the sealing surface whereby when the piston moves away from the main seat assembly water from the valve inlet will wash the grooves to remove any debris therein.